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10/004,363	11/01/2001	Ali Bani-Hashemi	2001P18496US	7290

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Siemens Corporation
Attn: Elsa Keller, Legal Administrator
Intellectual Property Department
186 Wood Avenue South
Iselin, NJ 08830

EXAMINER

MEHTA, PARIKHA SOLANKI

ART UNIT	PAPER NUMBER
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3737

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/004,363

Applicant(s)

BANI-HASHEMI ET AL.

Examiner

Parikha S. Mehta

Art Unit

3737

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5,7-14,16-18 and 20-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5,7-14,16-18 and 20-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 19 September 2007 have been fully considered but they are not persuasive.

2. Regarding the previous rejection of claims 1-3, 8 and 9 under 35 U.S.C. 101, Applicant alleges that the claimed method is not required to produce a useful, tangible and concrete result because the method itself does not constitute a judicial exception. As explained in detail in the Interim Guidelines for Examination of Patent Applications for Subject Matter Eligibility, published 22 November 2005, which were referenced in the prior Office Action, the mere manipulation of image data is considered to be a collection of steps for transmitting and receiving electromagnetic signals, which are deemed to be a judicial exception as set forth in the aforementioned Guidelines. Applicant is again encouraged to review these Guidelines for further discussion regarding the decision to treat electromagnetic signals as judicial exceptions.

As Applicant's arguments are not persuasive to overcome the rejection of claims 1-3, 8 and 9 under 35 U.S.C. 101, the rejection is maintained and reiterated herein.

3. Regarding the previous rejection of claims 1-3, 5, , 9-14, 16-18 and 20-23, Applicant alleges that the rejection is improper, namely because the Cosman (US Patent No. 6,405,072) reference does not sufficiently teach or disclose "acquisition of third three-dimensional surface data representing at least a portion of a patient's body while the patient is in a second position substantially maintained in preparation for radiation treatment to be delivered by a radiation treatment station, conversion of the three dimensional surface data to a coordinate frame of the radiation treatment station, and determination of if the first position corresponds to the second position by directly comparing the converted first three-dimensional surface data to the converted third three-dimensional surface data." (Remarks, p. 12 paragraph 2).

a. *"Acquisition of third three-dimensional surface data representing at least a portion of a patient's body while the patient is in a second position substantially maintained in preparation for radiation treatment to be delivered by a radiation treatment station."*

Regarding this limitation, Cosman ('072) states "the patient is moved to align the target or targets with the isocenter of the beam B" (col. 10 lines 50-53) and also provides steps for "continual confirmation of the patient's body relative to the LINAC machine" (col. 7 lines 25-28). Such continual confirmation is interpreted to be acquisition of additional surface data of a three-dimensional portion of a patient's body, while the patient is in a position maintained in preparation for radiation treatment.

b. "Conversion of the third three-dimensional surface data to a coordinate frame of the radiation treatment station"

As stated above, Cosman ('072) discloses continual confirmation of the patient's position in relation to the LINAC machine, and additionally discloses that "a transformation can be made via a computer or comparator...to establish the position of treatment plan targets relative to the coordinate space of the camera system" (col. 10 46-49). Stated differently, Cosman ('072) is effectively confirming the position of the radiation target relative to the position of the radiation beam by registering both positional data sets to a common space, which can be interpreted to constitute "a radiation treatment station" coordinate frame as claimed.

c. "Determination of if the first position corresponds to the second position by directly comparing the converted first three-dimensional surface data to the converted third three-dimensional surface data"

The steps of Cosman ('072) of "continual confirmation of the patient's body position relative to the LINAC machine" (col. 7 lines 25-28) and moving the patient if the isocenter locations do not correspond (col. 10 lines 50-53) are considered to constitute a determination of if the first position corresponds to the second position by comparing the first and third three-dimensional surface data sets as claimed.

As Applicant has failed to present sufficiently persuasive arguments or any further amendments which would effectively overcome the references recited in the prior Office Action, the previous rejection is maintained and reiterated herein. Additionally, Applicant has failed to submit a proper Terminal Disclosure or sufficiently persuasive arguments to overcome the previous Double Patenting rejections, and as such those rejections are also maintained and reiterated herein.

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A

terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-3, 5, 7-14, 16-18 and 20-23 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-26 of U.S. Patent No. 6,535,574. Although the conflicting claims are not identical, they are not patentably distinct from each other because they represent alternate variations and groupings of the same invention.

3. Claims 1-3, 5, 7-14, 16-18 and 20-23 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-16 of US Patent No. 7,016,522. Although the conflicting claims are not identical, they are not patentably distinct from each other because they represent alternate variations and groupings of the same invention.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 1-3 and 8-9 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 1-3 and 8-9 are directed toward a method for planning radiation treatment, the steps of which do not result in any kind of physical transformation, nor does it provide a useful, tangible and concrete result. Examiner suggests that Applicant amend claim 1 to possibly include steps for displaying an image or message indicating whether the first and second positions sufficiently correlate, or steps for treating the patient based upon the determined radiation plan, or some other such amendment sufficient to cure the statutory deficiencies of the instant application. For further reference regarding the definition of statutory subject matter as set forth by the USPTO, Examiner directs Applicant's attention to the USPTO published Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility published on 26 October 2005 :

http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/guidelines101_20051026.pdf

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-3, 5, 7, 9-14, 16-18 and 20-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Cosman (US Patent No. 6,405,072), hereinafter Cosman ('072).

Regarding claims 1, 5, 12-14 and 17, Cosman ('072) discloses a system and method for planning radiation treatment including means and steps for using a camera (photogrammetry device) to acquire a first three-dimensional surface data representing a portion of a patient's body while the patient is in a first position during a CT scan (Figs. 1-3 & 7, col. 10 lines 19-37), acquiring second data independent from the first data and representing at least one internal three-dimensional portion of the patient's body while the patient maintains the first position (col. 9 lines 46-65), determining a location of an isocenter of the patient based on the second data (col. 8 lines 20-30, col. 11 lines 1-11), converting the first three-dimensional surface data (camera space) to a coordinate frame of the patient (scan space) based on the location of the isocenter (col. 3 lines 26-67, col. 6 lines 39-59, col. 15 line 8-col. 16 line 42),

acquiring third 3D data representing a portion of the patient's body while the patient is in a second position maintained for delivery of radiation treatment, converting the third 3D data to a coordinate frame of the radiation treatment station, and determining if the first and second positions correspond by directly comparing the converted first 3D data to the converted third 3D data (col. 10 lines 37-57). The system of Cosman ('072) includes a controller as claimed in the instant application (col. 6 lines 50-59, col. 10 lines 37-50). Cosman ('072) additionally moves the patient to align the target with the radiation beam, which constitutes moving the patient so that the second position corresponds to the first position if the two positions are not already corresponding as claimed in the instant application (col. 10 lines 50-53).

Regarding claims 2, 14 and 18, Cosman ('072) discloses means and steps for determining a radiation treatment plan based on the first and second data, as well as data representing the camera space, couch position, and gantry position, which constitutes data representing a physical layout of the radiation treatment station as claimed in the instant application (col. 5 lines 8-45).

Regarding claim 3, Cosman ('072) states that "the controller 38 can move sequentially to different target positions within a generalized target volume" (col. 7 lines 18-24), which constitutes means and steps for determining a position of the radiation treatment device that will avoid the patient's body and that will allow irradiation of apportion of at least one internal portion of the patient's body as claimed in the instant application.

Regarding claim 7, Cosman ('072) discloses that the controller incorporates structure to record and verify positional relationships such as that between the radiation beam and the patient, and that it further manipulates the status of the beam during treatment (col. 6 lines 50-59), which constitutes changing the radiation treatment plan based on differences between the first and second positions as claimed in the instant application.

Regarding claims 9 and 20, Cosman ('072) teaches computerized means and steps for determining whether the patient's body has changed greater than a threshold amount and obtaining additional surface data in order to re-align the target position (col. 16 line 60-col. 17 line 47).

Regarding claims 10, 11, and 21-23, Cosman ('072) discloses means and steps for continuously monitoring the location of the radiation target during treatment to maintain confirmation of its position relative to the beam, and that the system can detect tidal movement such as respiratory movement (col. 7 lines 18-25). Furthermore, as discussed for claim 7, Cosman ('072) discloses turning the radiation beam on only when it is positioned over the target (col. 6 lines 50-59). In combination, these disclosures constitute acquiring a fourth and fifth surface data set and activating the radiation beam only if it is

determined that the patients' position corresponds to a point in a cycle of body motion specified by the plan as claimed in the instant application.

Regarding claim 16, Cosman ('072) shows that first and second cameras (photogrammetry devices) may be the same device (Figs. 5 & 6).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cosman ('072). Cosman ('072) substantially teaches all features of the present invention as previously discussed for claim 1, but does not explicitly teach determining whether the patient represented by the first data is different from the patient represented by the third data. As previously stated, Cosman ('072) does teach that the method and system are capable of verifying the position of the radiation target prior to delivering treatment (col. 6 lines 50-59, col. 10 lines 37-57). One of ordinary skill in the art at the time of invention would find it obvious, then, that the system and method of Cosman ('072) would inadvertently detect whether the patient being radiated is different from the patient of the initial scan data, since the positions of the radiation target would necessarily be different for two separate patients.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Application/Control Number:
10/004,363
Art Unit: 3737

Page 8

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Parikha S. Mehta whose telephone number is 571.272.3248. The examiner can normally be reached on M-F, 8 - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571.272.4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Parikha Solanki Mehta
Examiner -- Art Unit 3737

